ABSTRACT

A photoresist layer is preprocessed by carrying out an ion beam implantation onto a patterned photoresist layer with conductive ions. The conductive ions may comprise ions of carbon, SB, indium, silicon, or other metallic/semiconductor atoms/molecules. The ion implantation is carried out by applying ion beams of energy lower than 1000 ev such that the pre-process implantation would not cause any alterations to the profile or layer structure of the photoresist layer. In order to assure sufficient conductivity is achieved in the photoresist layer, it is desirable that a high dose of implanting ion beam is used, preferable having a ion dosage in a range of 10^{16} /cm^2 to 10^{18} /cm^2. A large quantity of resist out-gassing would occur during the high dose implants. Wafers with resist patterns can thus be subject to electron beam inspections without the problems of electric charging and photoresist out-gassing.